Introduction: The Changing World of Data

by Surekha Parekh

Cloud, Big Data, Analytics, and Mobile are changing the landscape for enterprise customers, and this change is driving greater need than ever for Security. The use of data and devices is exploding right before our eyes. This paradigm shift presents unique opportunities and challenges for enterprise companies wanting to leverage data and analytics to differentiate and gain a competitive advantage.

Few organizations can keep pace with the appetite for data. As business professionals recognize the revenue potential from analyzing and acting on insight, demand for data escalates. But systems and budgets can't keep up with the increased demand, the complexity of all the types of data, and the need to act fast. Current IT infrastructures just aren't sustainable. Top-performing organizations confront this reality by balancing the costs, risks, and benefits of sustaining their existing architecture while adopting new technologies and platforms.

Why DB2 for z/OS?

To fully capitalize on their data for competitive advantage, enterprises must have the right database infrastructure in place. DB2 for z/OS is well equipped to furnish enterprise customers the insights that will drive revenue, improve responsiveness, and help them stay ahead of the competition. The upcoming next release of DB2 for z/OS—DB2 12—scheduled for availability in 2016, is expected to further evolve the platform's analytics capabilities.

On October 6, 2015, IBM announced DB2 12 for z/OS Early Support Program; IBM will be making DB2 12 available to select customers starting March 4, 2016. You could think of this as a "beta," although it is much more, in our opinion.

What will DB2 12 deliver? It's way too early to start going into any detail; so much can happen between now and when the product is actually delivered. However, what we can tell you is that DB2 12 is built on the proven, trusted availability, security, and scalability of DB2 11 for z/OS and the IBM z Systems platform—the gold standard in the industry. DB2 12 will give you the capabilities required to meet the business demands of the future and will help enterprises exploit data and information and gain knowledge and wisdom.

DB2 12 delivers innovations in these key areas—and much more:

- Scale and speed for the next era of mobile applications and interconnected devices (Internet of Things, or IoT)
- Speedy in-memory database performance for innovation
- Next-generation application development support for CAMS (Cloud, Analytics, Mobile, and Security) and deeper insights
- Easy access to your enterprise systems of record

DB2 for z/OS Is Ready for Cloud, Analytics, Mobile, and Spark

This book is divided into five segments, related to Cloud, Analytics, Mobile, and Spark:

1. DB2 for z/OS and Cloud Computing
2. Could Your Analytics Strategy Cost Your Business $100M? Learn How New Technologies Can Help Protect Your Analytics, Data, and Your Bottom Line
3. Predictive Analytics Using IBM SPSS Modeler in DB2 for z/OS
4. Maximizing Mobile Initiatives with IBM DB2 for z/OS
5. DB2 for z/OS and Spark Integration

1. DB2 for z/OS and Cloud Computing

Most people probably realize that data is extremely valuable. However, what they may not realize is that together, data and cloud help address key business challenges that clients face when they apply data and analytics to their business. As data shifts rapidly to the cloud, enterprises are looking to both mine those data sources and perform analytics on them. This trend is changing the face of the market, creating opportunities for new buyers—from business analysts to developers.

IBM DB2 for z/OS includes a cloud solution that offers organizations the opportunity to remove expensive hardware and move to a responsive, virtual environment. With DB2 for z/OS on the cloud, you can reduce cost and complexity in your IT infrastructure, simplify compliance, and get the most out of your core asset—your data, without impacting security. In this section, you'll learn how by moving to the cloud, you can transform and adapt while limiting risk and cost to achieve agility and efficiency by standardizing best practices.

2. Could Your Analytics Strategy Cost Your Business $100M? Learn How New Technologies Can Help Protect Your Analytics, Data, and Your Bottom Line

Technology trends and forces such as cloud, mobile, and big data can represent big opportunities to bring analytic insight to the enterprise. They can also represent big risks if proper data security and governance controls are not in place. In 2015, one of the largest health benefits companies in the United States reported that its systems were the target of a massive data breach. This exposed millions of records containing sensitive consumer information, such as Social Security numbers, medical IDs, and income information. Various sources, including The Insurance Insider, suggest that this company's $100 million cyber-insurance policy would be depleted by the costs of notifying consumers of the breach and providing credit monitoring services—and that doesn't consider other significant costs associated with a breach such as lost business, regulatory fines, and lawsuits.

Data is now so important that it is has a value on the balance sheet. Cyber criminals know this. Without exception, every industry has been under attack and suffered data breaches: healthcare, government, banking, insurance, retail, and telecommunications. Once a company has been breached, hackers focus on other companies in that same industry to exploit similar vulnerabilities. In 2015 the average cost of a data breach was $3.79 million, causing long term damage to the brand, loss of faith and customer churn.

As you think about the impacts of this and other data security breaches occurring at organizations worldwide, consider this question: how exposed is your business to a similar type of breach? To answer this question, you must first ask, "Where does the data that feeds our analytics processes originate?" Read this paper to gain a deeper insight.

3. Predictive Analytics Using IBM SPSS Modeler in DB2 for z/OS

This section focuses on predictive analytics using IBM SPSS Modeler and data stored in IBM DB2 for z/OS. We illustrate how to use the Modeler Workbench to create predictive models with in-database mining, SQL pushback, and user-defined function scoring. You will walk through the steps for integrating real-time scoring for DB2 for z/OS into an OLTP application. Then, you'll learn what needs to be done in the DB2 server and the information an application developer needs to know to create an enterprise solution for in-database transactional scoring and batch scoring.

4. Maximizing Mobile Initiatives with IBM DB2 for z/OS

Mobile is becoming the primary mode of transaction and delivery for critical business insight. Mobile provides clients with the means to securely improve visibility and control, connect with customers in context, and create new value at the moment of awareness. 50.3 percent of e-commerce website traffic comes through a mobile device (source: Shopify), and 60 percent of global mobile consumers use their mobile device as their primary or exclusive Internet source (source: Internet Retailer). This section discusses how and why mobile computing solutions built around IBM® z Systems™ and IBM DB2® for z/OS® can help banks deliver on business challenges around reducing costs, improving awareness of security needs, understanding customers, and increasing market share.

5. DB2 for z/OS and Spark Integration

Apache® Spark™ is an open source cluster computing framework with in-memory processing to speed analytic applications up to 100 times faster compared to technologies on the market today. Developed in the AMPLab at University of California, Berkeley, Apache Spark can help reduce data interaction complexity, increase processing speed, and enhance mission-critical applications with deep intelligence. Highly versatile in many environments, Apache Spark is known for its ease of use in creating algorithms that harness insight from complex data.

Spark was elevated to a top-level Apache Project in 2014 and continues to expand today. IBM is committing to the Apache Spark project with investments in design-led innovation and broad-scale education programs to promote open source innovation and accelerate intelligence into every application. Since DB2 is the preferred system of record for structured data, an integration of Spark with DB2 is an obvious next step in the evolution of Big Data. Customers often have a need to perform analytics on not just pure DB2 data, but aggregate DB2 data with other data sources to derive additional business insights. In this section, you'll learn how to integrate Spark with DB2 for z/OS data.

We hope you enjoy this book.

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